

# NONRESIDENTIAL MARKET SHARE TRACKING STUDY

## APPENDIX C UPSTREAM MARKET ACTOR TELEPHONE SURVEY QUESTIONNAIRES

*Prepared For:*  
**California Energy Commission**

*Prepared By:*  
**Aspen Systems Corporation**

*With*  
**Williams-Wallace Management Consultants  
Robert Thomas Brown Company**



**CONSULTANT REPORT**

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## **Appendix C**

### **Questionnaires Used for the Upstream Market Actor Telephone Surveys**

- Chiller Form 1: Water Chiller Market Pathways, Sales and Pricing Telephone/Mail Survey for National Chiller Manufacturers
- Chiller Form 2: Water Chiller Market Pathways, Sales and Pricing Telephone/Mail Survey for Installers and Designers of Chiller Systems
- Lighting Form 1: Lighting Market Pathways, Sales and Pricing Telephone/Mail Survey for Lighting Wholesalers and Distributors
- Lighting Form 2: Lighting Market Pathways, Sales and Pricing Telephone/Mail Survey for Lighting Designers and Specifiers
- Lighting Form 3: Lighting Market Pathways, Sales and Pricing Telephone/Mail Survey for Lighting Manufacturers
- Windows Form: Window Market Pathways, Sales and Pricing Telephone/Mail Survey for Window Vendors and Installers

## Water Chiller Market Pathways, Sales and Pricing Telephone/Mail Survey For National Chiller Manufacturers

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Company Name: _____
Respondent Name: _____	Phone Number: _____
Email: _____	
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the chiller market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Sales volume and pricing questions

1. How long has your company been selling centrifugal, reciprocating, or screw chillers in California? \_\_\_\_\_ years

DK   ☐   DON'T KNOW

2. Please estimate the percentage of total chiller units your company produces that are sold in California:

Q2.a. Percentage of total chiller units sold in CA	_____ %
Q2.b. Percentage of total cooling tons sold in CA	_____ %
Q2.c. Percentage of total chiller sales revenues in CA	_____ %
TOTAL	100 %

RE   ☐   CHECK IF ROUGH ESTIMATE  
 RTD   ☐   REFUSE TO DISCLOSE  
 DK   ☐   DON'T KNOW

3. Of your California sales, please estimate the percentage of chiller units your company produces that are sold for:

Q3.a. Space-conditioning applications in nonresidential buildings	_____ %
Q3.b. Industrial process-cooling applications	_____ %
Q3.c. Other:	_____ %

- |                              |                         |       |
|------------------------------|-------------------------|-------|
|                              | TOTAL                   | 100 % |
| RE <input type="checkbox"/>  | CHECK IF ROUGH ESTIMATE |       |
| RTD <input type="checkbox"/> | REFUSE TO DISCLOSE      |       |
| DK <input type="checkbox"/>  | DON'T KNOW              |       |
4. Of your California sales, please estimate the percentage of total chiller units your company produces for space-conditioning applications in the following nonresidential applications:
- |   |                         |       |
|---|-------------------------|-------|
| Q4.a. For installation in new construction              | _____                   | %     |
| Q4.b. For replacement or retrofit in existing buildings | _____                   | %     |
| Q4.c. For expansion of existing facilities              | _____                   | %     |
|   | TOTAL                   | 100 % |
| RE <input type="checkbox"/>                             | CHECK IF ROUGH ESTIMATE |       |
| RTD <input type="checkbox"/>                            | REFUSE TO DISCLOSE      |       |
| DK <input type="checkbox"/>                             | DON'T KNOW              |       |
5. Please estimate the percentage of total chiller units your company produces that are sold in California for space-conditioning applications in nonresidential applications that are:
- |   |                         |       |
|---|-------------------------|-------|
| Q5.a. Manufactured for custom, site-specific applications | _____                   | %     |
| Q5.b. Manufactured for sale of a standard size & capacity | _____                   | %     |
|   | TOTAL                   | 100 % |
| RE <input type="checkbox"/>                               | CHECK IF ROUGH ESTIMATE |       |
| RTD <input type="checkbox"/>                              | REFUSE TO DISCLOSE      |       |
| DK <input type="checkbox"/>                               | DON'T KNOW              |       |

### Market pathway question

6. Please estimate the percentage of California chiller sales (expressed in dollars) that are **SOLD DIRECTLY** to the following market actors:
- |   |                         |       |
|---|-------------------------|-------|
| Q6.a. HVAC&R wholesalers and distributors     | _____                   | %     |
| Q6.b. Builders and developers                 | _____                   | %     |
| Q6.c. Mechanical and general contractors      | _____                   | %     |
| Q6.d. Building or facility owners or managers | _____                   | %     |
| Q6.e. Energy service companies (ESCOs)        | _____                   | %     |
| Q6.f. Consulting and design engineers         | _____                   | %     |
| Q6.g. Other: _____                            | _____                   | %     |
|   | TOTAL                   | 100 % |
| RE <input type="checkbox"/>                   | CHECK IF ROUGH ESTIMATE |       |
| RTD <input type="checkbox"/>                  | REFUSE TO DISCLOSE      |       |
| DK <input type="checkbox"/>                   | DON'T KNOW              |       |

**Market attributes and decision-factor questions**

7. What factors and concerns are cited by customers when they are selecting a chiller?  
(DON'T READ LIST. CHECK OFF THE FACTORS MENTIONED.)

Question #7 Check off any factors mentioned	Question #8 Percentage of customers citing factor
Q7.a. <input type="checkbox"/> First cost	%
Q7.b. <input type="checkbox"/> Delivery time	%
Q7.c. <input type="checkbox"/> Ease of installation	%
Q7.d. <input type="checkbox"/> Same brand as existing chillers	%
Q7.e. <input type="checkbox"/> Reliability	%
Q7.f. <input type="checkbox"/> Chiller expected life	%
Q7.g. <input type="checkbox"/> Full-load efficiency (kW/ton)	%
Q7.h. <input type="checkbox"/> Part-load efficiency	%
Q7.i. <input type="checkbox"/> Small footprint	%
Q7.j. <input type="checkbox"/> Service contract quality or value	%
Q7.k. <input type="checkbox"/> Chiller controls ease-of-use	%
Q7.l. <input type="checkbox"/> Ability to integrate controls with existing energy management system	%
Q7.m. <input type="checkbox"/> Other: _____	%
Q7.n. <input type="checkbox"/> Other: _____	%

8. In considering the factors above, are you able to estimate the approximate percentage of customers that cite each factor? (READ BACK OVER THE LIST FROM THE QUESTION ABOVE. RECORD ANSWERS IN TABLE.) If you don't know exactly, would you please estimate a range of percentages?
9. Have California energy-efficiency incentive programs had an effect on sales of higher efficiency chillers? Check all incentive program types that apply.

Question #9 Check off energy-efficiency incentive programs mentioned.	Question #10 Effect on Sales (Record +/- change)
Q9.a. <input type="checkbox"/> Predetermined incentive levels for high efficiency chillers	%
Q9.b. <input type="checkbox"/> Customized cash incentives or rebates	%
Q9.c. <input type="checkbox"/> Utility financing (loans)	%
Q9.d. <input type="checkbox"/> Standard performance contracts	%
Q9.e. <input type="checkbox"/> Other energy-savings performance contracts	%
Q9.f. <input type="checkbox"/> Other: _____	%
Q9.g. <input type="checkbox"/> Not sure	%

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

10. Please estimate the approximate percentage change in sales from each type of incentive program? (READ BACK OVER THE LIST FROM THE QUESTION ABOVE. RECORD ANSWER IN TABLE.) If you don't know exactly, can you estimate a range of percentages?
11. During the California "energy crisis", did you find it easier to sell new chillers, harder, or about the same, as before?
- Q11.a. ☐ No effect, about the same
- Q11.b. ☐ Easier to sell some chillers:
- Q11.c. ☐ Higher efficiency chillers or those with features that improve efficiency
- Q11.d. ☐ Easier to sell chillers with advanced control features
- Q11.e. ☐ Harder to sell some chillers
- Q11.f. ☐ Not sure / No opinion
12. Has that change persisted after the "crisis" abated?
- Q12.a. ☐ Yes
- Q12.b. ☐ No
- Q12.c. ☐ Don't Know / No Opinion
13. Under normal circumstances, what is the typical chiller delivery lead time, for the range of 200 to 500 tons? \_\_\_\_\_ weeks
- RE ☐ CHECK IF ROUGH ESTIMATE
- DK ☐ DON'T KNOW
14. For chillers over 500 tons? \_\_\_\_\_ weeks
- RE ☐ CHECK IF ROUGH ESTIMATE
- DK ☐ DON'T KNOW
15. How much **extra time, if any**, does it typically add to delivery time to order a chiller with energy-efficiency options? \_\_\_\_\_ weeks
- RE ☐ CHECK IF ROUGH ESTIMATE
- RTD ☐ REFUSE TO DISCLOSE
- DK ☐ DON'T KNOW
16. Do you have any other comments you would like to share?
- \_\_\_\_\_
- \_\_\_\_\_
17. We are interested in data for unit sales of reciprocating and rotary screw water chillers and prices for the same items. We can accept data in any form in which you have it. Ideally, we would like data for 2000, 2001, and 2002, I would be happy to fax a copy of our Chiller Equipment Sales and Pricing Form to you.

Fax Number: \_\_\_\_\_

Date Fax sent: \_\_\_\_\_

Date Fax returned: \_\_\_\_\_

**Standard Reporting Form**  
**Water Chilling Packages - Shipments, Pricing and Efficiency Data**  
**California Energy Commission Nonresidential Market Share Tracking Study**

Company: \_\_\_\_\_ Reporting Period: \_\_\_\_\_

Respondent: \_\_\_\_\_ Position: \_\_\_\_\_ Phone: \_\_\_\_\_

The primary objective of this survey is to determine the market share achieved by energy-efficient equipment as a function of time. Your data will be combined with that submitted by other companies, and will not be separately disclosed.

We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002, including any data on a quarterly basis. We realize this is asking for more than you may be willing to provide. Please send whatever data you can. Copy the form if you can provide multi-period data. Please note the *Reporting Period* at the top of the page.

Fax Completed Forms to William Steigelmann at 301-519-6333.

**Reciprocating Chillers** (Electrically operated, positive displacement, water cooled) Please provide sales and pricing data, according to rated Coefficient of Performance (COP), as shown

Size Category (Capacity)	Rated C.O.P.	Total Units sold in California	Est. CA Sales Revenue (\$000)	Notes
a. All Capacities	< 3.8 COP			Title 24 Minimum before 11/1/01
b. All Capacities	3.8 to 4.2 COP			Title 24 Minimum after 11/1/01
c. All Capacities	4.2 to >7.0 COP			

**Reciprocating Chillers.** Check off available energy-efficiency features available for this type of chiller

Energy-Efficiency Feature	Availability (Check One)			If a Priced Option	
	Not Available	Standard Feature	Priced Option	Approx. Percentage of Chillers Sold with Option	Approx. Percentage Price Increase for this Option
a. Adjustable speed drive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%
b. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%

**Rotary Screw and Scroll Chillers** (Electrically operated, water-cooled) Please provide sales and pricing data, according to capacity and rated Coefficient of Performance (COP), as shown

Size Category (Capacity)	Rated C.O.P.	Total Units sold in California	Est. CA Sales Revenue (\$000)	Notes
<b>a. &lt;150 tons</b>	a1. < 3.8 COP			TITLE 24 Minimum before 11/1/01
	a2. 3.8 - 4.44 COP			TITLE 24 Minimum after 11/1/01
	a3. 4.45 to >7.0			
<b>b. 150-299 tons</b>	b1. < 4.1 COP			TITLE 24 Minimum before 11/1/01
	b2. 4.2 - 4.8 COP			TITLE 24 Minimum after 11/1/01
	b3. 4.9 to >7.0 COP			
<b>c. &gt;300 tons</b>	c1. < 5.1 COP			TITLE 24 Minimum before 11/1/01
	c2. 5.2 - 5.4 COP			TITLE 24 Minimum after 11/1/01
	c3. 5.5 to > 7.0 COP			

**Rotary Screw and Scroll Chillers.** Check off available energy-efficiency features available for this type of chiller

Energy-Efficiency Feature	Availability (Check One)			If a Priced Option	
	Not Available	Standard Feature	Priced Option	Approx. Percentage of Chillers Sold with Option	Approx. Percentage Price Increase for this Option
a. Variable speed drive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%
b. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%



## Water Chiller Market Pathways, Sales and Pricing Telephone/Mail Survey for Installers and Designers of Chiller Systems

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Company Name: _____
Respondent Name: _____	Phone Number: _____
Email: _____	
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the chiller market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Contact qualification questions

1. What specific types of chiller products and services does your company offer?  
(CHECK ALL THAT APPLY)

- Q1.a. ☐ Sales of centrifugal, reciprocating, or screw chillers  
 Q1.b. ☐ Chiller installation, maintenance, or repair services  
 Q1.c. ☐ Post-installation chiller trouble-shooting or commissioning services  
 Q1.d. ☐ Air-conditioning system design and chiller-specification services  
 Q1.e. ☐ Other: \_\_\_\_\_

IF "CHILLERS" DOES NOT APPEAR: Thank you, however this survey does not apply to your business. Good-bye

2. What is the approximate number of employees working for your company? \_\_\_\_\_  
 3. What is the percentage of full-time employees? \_\_\_\_\_%

### Sales volume and pricing questions

4. Please estimate the overall percentage of chiller units your company sold in California during 2002 for the following applications:

- |   |         |
|---|---------|
| Q4.a. Space-conditioning applications in nonresidential Buildings | _____ % |
| Q4.b. Industrial process-cooling applications                     | _____ % |
| Q4.c. Other:  | _____ % |

		TOTAL	100 %
RE	<input type="checkbox"/>	CHECK IF ROUGH ESTIMATE	
RTD	<input type="checkbox"/>	REFUSE TO DISCLOSE	
DK	<input type="checkbox"/>	DON'T KNOW	

5. Please estimate the overall percentage of chiller units your company sold in California during 2002 for space conditioning in each of the following nonresidential applications:

Q5.a.	For installation in new construction	_____	%
Q5.b.	For replacement or retrofit in existing buildings	_____	%
Q5.c.	For expansion of existing facilities	_____	%
		TOTAL	100 %
RE	<input type="checkbox"/>	CHECK IF ROUGH ESTIMATE	
RTD	<input type="checkbox"/>	REFUSE TO DISCLOSE	
DK	<input type="checkbox"/>	DON'T KNOW	

### Market pathway questions

6. Please estimate the percentages of the dollar volume of chiller products that you **BUY** that come from each of the following sources:

Q6.a.	Direct from national manufacturers	_____	%
Q6.b.	Chiller wholesalers and distributors	_____	%
Q6.c.	Other: _____	_____	%
		TOTAL	100 %
RE	<input type="checkbox"/>	CHECK IF ROUGH ESTIMATE	
RTD	<input type="checkbox"/>	REFUSE TO DISCLOSE	
DK	<input type="checkbox"/>	DON'T KNOW	

7. Please estimate the percentages of the dollar volume of chiller products that you **SELL DIRECTLY** to each of the following types of customers:

Q7.a.	Builders or developers	_____	%
Q7.b.	Mechanical or general contractors	_____	%
Q7.c.	Building or facility owners or managers	_____	%
Q7.d.	Energy service companies (ESCOs)	_____	%
Q7.e.	Consulting and design engineers	_____	%
Q7.f.	Other: _____	_____	%
		TOTAL	100 %
RE	<input type="checkbox"/>	CHECK IF ROUGH ESTIMATE	
RTD	<input type="checkbox"/>	REFUSE TO DISCLOSE	
DK	<input type="checkbox"/>	DON'T KNOW	

8. What is the approximate total annual revenue of your company? \$ \_\_\_\_\_

RE	<input type="checkbox"/>	CHECK IF ROUGH ESTIMATE
RTD	<input type="checkbox"/>	REFUSE TO DISCLOSE
DK	<input type="checkbox"/>	DON'T KNOW

(IF RESPONDENT ASKS WHY THIS IS NEEDED, EXPLAIN THAT IT IS TO WEIGHT THE OTHER QUANTITATIVE RESPONSES WHEN THEY ARE COMBINED WITH THE DATA PROVIDED BY OTHER FIRMS.)

9. What is the approximate percentage of revenue for each of the following services?

Q9.a. New construction design and specifications \_\_\_\_\_ %  
 Q9.b. Rebuild/retrofit design \_\_\_\_\_ %  
 Q9.c. Installation or maintenance of chiller systems \_\_\_\_\_ %  
 Q9.d. Other: \_\_\_\_\_ %

TOTAL 100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

10. Where are your customers mostly located?

Q10.a. ☐ All over California  
 Q10.b. ☐ Northern California (including Sacramento, Santa Rosa, and points north)  
 Q10.c. ☐ Central California (including San Joaquin Valley, Fresno, Bakersfield, Modesto, Sierra Nevada)  
 Q10.d. ☐ San Francisco Bay metropolitan area (including Oakland, San Jose, Palo Alto)  
 Q10.e. ☐ Los Angeles metropolitan area (including Orange County)  
 Q10.f. ☐ San Diego metropolitan area and southeastern locales  
 Q10.g. ☐ Other: \_\_\_\_\_

### Market attributes and decision factor questions

11. What decision factors are cited by your customers when deciding to buy a chiller?

(DON'T READ LIST. CHECK OFF FACTORS THAT RESPONDENT MENTIONS.)

Question #11 Check off factors mentioned	Question #12 Percentage of customers citing factor
Q11.a. <input type="checkbox"/> First cost	_____ %
Q11.b. <input type="checkbox"/> Delivery time	_____ %
Q11.c. <input type="checkbox"/> Ease of installation	_____ %
Q11.d. <input type="checkbox"/> Same brand as existing chillers	_____ %
Q11.e. <input type="checkbox"/> Reliability	_____ %
Q11.f. <input type="checkbox"/> Chiller expected life	_____ %
Q11.g. <input type="checkbox"/> Full-load efficiency (kW/ton)	_____ %
Q11.h. <input type="checkbox"/> Part-load efficiency	_____ %
Q11.i. <input type="checkbox"/> Small footprint	_____ %
Q11.j. <input type="checkbox"/> Service contract quality or value	_____ %
Q11.k. <input type="checkbox"/> Chiller controls ease of use	_____ %
Q11.l. <input type="checkbox"/> Ability to integrate controls with existing energy management system	_____ %
Q11.m. <input type="checkbox"/> Other: _____	_____ %
Q11.n. <input type="checkbox"/> Other: _____	_____ %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

12. In considering the factors above, are you able to estimate the approximate percentage of customers that cite each factor? (READ BACK OVER THE LIST FROM THE QUESTION ABOVE. RECORD ANSWER IN TABLE.) If you don't know exactly, can you estimate a range of percentages?

13. Have California energy-efficiency incentive programs had an effect on sales of higher efficiency chillers? Check all incentive program types that apply.

Question #13 Check off energy efficiency incentive programs mentioned		Question #14 Effect on Sales (Record +/- change)
Q13.a.	<input type="checkbox"/> Predetermined incentive levels for high-efficiency chillers	%
Q13.b.	<input type="checkbox"/> Customized cash incentives or rebates	%
Q13.c.	<input type="checkbox"/> Utility financing (loans)	%
Q13.d.	<input type="checkbox"/> Standard performance contracts	%
Q13.e.	<input type="checkbox"/> Other energy savings performance contracts	%
Q13.f.	<input type="checkbox"/> Other: _____	%
Q13.g.	<input type="checkbox"/> Not sure	%

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

14. Please estimate the approximate percentage change in sales from each type of incentive program? (READ BACK OVER THE LIST FROM THE QUESTION ABOVE. RECORD ANSWER IN TABLE.) If you don't know exactly, can you estimate a range of percentages?

15. During the California "energy crisis", did you find it easier to sell new chillers, harder, or about the same, as before?

- Q15.a. ☐ No effect  
 Q15.b. ☐ Easier to sell some chillers:  
 Q15.c. ☐ Higher efficiency chillers or those with features that improve efficiency  
 Q15.d. ☐ Easier to sell chillers with advanced control features  
 Q15.e. ☐ Harder to sell some chillers  
 Q15.f. ☐ Not sure

16. Has that change persisted after the "crisis" abated?

- Q16.a. ☐ Yes  
 Q16.b. ☐ No

17. Under normal circumstances, what is the typical chiller delivery lead time in the range of 200 to 500 tons? \_\_\_\_\_ weeks

Q17.a. ☐ Check if rough answer

Q17.b. ☐ Don't know

18. For chillers over 500 tons? \_\_\_\_\_ weeks

Q18.a. ☐ Check if rough answer

Q18.b. ☐ Don't know

19. How much extra time, if any, does it typically add to delivery time to order a chiller with energy efficiency-related options? \_\_\_\_\_ weeks

Q19.a. ☐ Check if rough answer

Q19.b. ☐ No added delivery time

Q19.c. ☐ Don't know

20. Closing: Do you have any other comments you would like to share?

\_\_\_\_\_  
\_\_\_\_\_

21. We are interested in data for unit sales of reciprocating and rotary screw water chillers and prices for the same items. We can accept data in any form in which you have it. Ideally, we would like data for 2000, 2001, and 2002, I would be happy to fax a copy of our Chiller Equipment Sales and Pricing Form to you.

Fax Number: \_\_\_\_\_

Date Fax sent: \_\_\_\_\_ Date Fax returned: \_\_\_\_\_

**Standard Reporting Form**  
**Water Chilling Packages - Shipments, Pricing and Efficiency Data**  
**California Energy Commission Nonresidential Market Share Tracking Study**

Company: \_\_\_\_\_ Reporting Period: \_\_\_\_\_

Respondent: \_\_\_\_\_ Position: \_\_\_\_\_ Phone: \_\_\_\_\_

The primary objective of this survey is to determine the market share achieved by energy-efficient equipment as a function of time. Your data will be combined with that submitted by other companies, and will not be separately disclosed.

We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002, including any data on a quarterly basis. We realize this is asking for more than you may be willing to provide. Please send whatever data you can. Copy the form if you can provide multi-period data. Please note the *Reporting Period* at the top of the page.

Fax Completed Forms to William Steigelmann at 301-519-6333.

**Reciprocating Chillers** (Electrically operated, positive displacement, water cooled) Please provide sales and pricing data, according to rated Coefficient of Performance (COP), as shown

Size Category (Capacity)	Rated C.O.P.	Total Units sold in California	Est. CA Sales Revenue (\$000)	Notes
a. All Capacities	< 3.8 COP			Title 24 Minimum before 11/1/01
b. All Capacities	3.8 to 4.2 COP			Title 24 Minimum after 11/1/01
c. All Capacities	4.2 to >7.0 COP			

**Reciprocating Chillers.** Check off available energy-efficiency features available for this type of chiller

Energy-Efficiency Feature	Availability (Check One)			If a Priced Option	
	Not Available	Standard Feature	Priced Option	Approx. Percentage of Chillers Sold with Option	Approx. Percentage Price Increase for this Option
a. Adjustable speed drive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%
b. Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%

**Rotary Screw and Scroll Chillers** (Electrically operated, water-cooled) Please provide sales and pricing data, according to capacity and rated Coefficient of Performance (COP), as shown

Size Category (Capacity)	Rated C.O.P.	Total Units sold in California	Est. CA Sales Revenue (\$000)	Notes
<b>a. &lt;150 tons</b>	a1. < 3.8 COP			TITLE 24 Minimum before 11/1/01
	a2. 3.8 - 4.44 COP			TITLE 24 Minimum after 11/1/01
	a3. 4.45 to >7.0			
<b>b. 150-299 tons</b>	b1. < 4.1 COP			TITLE 24 Minimum before 11/1/01
	b2. 4.2 - 4.8 COP			TITLE 24 Minimum after 11/1/01
	b3. 4.9 to >7.0 COP			
<b>c. &gt;300 tons</b>	c1. < 5.1 COP			TITLE 24 Minimum before 11/1/01
	c2. 5.2 - 5.4 COP			TITLE 24 Minimum after 11/1/01
	c3. 5.5 to > 7.0 COP			

**Rotary Screw and Scroll Chillers.** Check off available energy-efficiency features available for this type of chiller

Energy-Efficiency Feature	Availability (Check One)			If a Priced Option	
	Not Available	Standard Feature	Priced Option	Approx. Percentage of Chillers Sold with Option	Approx. Percentage Price Increase for this Option
a. Variable speed drive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%
b. Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	%	%

## Lighting Market Pathways, Sales and Pricing Telephone/Mail Survey for Lighting Wholesalers and Distributors

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Firm Name: _____
	Firm City: _____
Respondent Name: _____	Phone Number: _____
	Respondent email: _____
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the nonresidential lighting market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Contact qualification questions

1. Is your company a wholesaler or distributor of lamps and fixtures that are installed in nonresidential (commercial) buildings?
  - Q1.a. ☐ Yes
  - Q1.b. ☐ No *This survey does not apply to your business. Thank you for your time.*
  
2. Does your product line include T8 and T5 lamps, electronic ballasts, and/or compact fluorescent lamps?
  - Q2.a. ☐ Yes
  - Q2.b. ☐ No
  
3. Does your product line include T12 lamps, magnetic ballasts and/or incandescent light bulbs?
  - Q3.a. ☐ Yes
  - Q3.b. ☐ No
  
4. Does your company provide services to your customers, such as lighting design or installation?
  - Q4.a. ☐ Yes [ALSO ASK QUESTIONS ON LIGHTING FORM 2]
  - Q4.b. ☐ No



5. What is the approximate dollar volume of your annual sales of lighting products used in nonresidential buildings? \$ \_\_\_\_\_

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

(IF RESPONDENT ASKS WHY THIS IS NEEDED, EXPLAIN THAT IT IS TO WEIGHT THE OTHER QUANTITATIVE RESPONSES WHEN THEY ARE COMBINED WITH THE DATA PROVIDED BY OTHER FIRMS.)

6. What percentage is this of your total annual sales revenue? \_\_\_\_\_ %

7. How many people does your company employ? \_\_\_\_\_

### Market pathway questions

8. Please estimate the percentages of the dollar volume of products sold for use in the nonresidential sector that you **BUY** that come from each of the following sources:

Q8.a.	Lamp and Ballast Manufacturers	_____	%
Q8.b.	Luminaire Manufacturers	_____	%
Q8.c.	Specialty Manufacturers	_____	%
Q8.d.	Other _____	_____	%
Total:			100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

9. Please estimate the percentages of the dollar volume of products that you **SELL** directly to each of the following types of customers, for use in the nonresidential sector:

Q9.a.	Electrical Contractors and Lighting Installers	_____	%
Q9.b.	Building or Facility Owners or Managers	_____	%
Q9.c.	Builders of new nonresidential buildings	_____	%
Q9.d.	Energy Service Companies (ESCOs)	_____	%
Q9.e.	Designers & Specifiers	_____	%
Q9.f.	General Public	_____	%
Q9.g.	Other: _____	_____	%
Total:			100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

10. Comment (IF ANY): \_\_\_\_\_

\_\_\_\_\_

11. Please estimate the percentages of the dollar volume of products that you **SELL** directly to each of the following market segments:

Q11.a	Existing Nonresidential Buildings	_____	%
Q11.b.	New Nonresidential Building Construction	_____	%
Q11.c.	Residential and Multifamily, New and Existing	_____	%
Q11.d.	Industrial, New and Existing	_____	%
Q11.e.	Other-1: _____	_____	%
Q11.f	Other-2: _____	_____	%
Total:			100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

12. Where are most of your customers located? (MULTIPLE RESPONSES ARE ACCEPTABLE)

Q1.a. ☐ All over California  
 Q1.b. ☐ Northern California (including Sacramento, Santa Rosa, and points north)  
 Q1.c. ☐ Central California (including San Joaquin Valley, Fresno, Bakersfield, Modesto, Sierra Nevada)  
 Q1.d. ☐ San Francisco Bay metropolitan area (including Oakland, San Jose, Palo Alto)  
 Q1.e. ☐ Los Angeles metropolitan area (including Orange County)  
 Q1.f. ☐ San Diego metropolitan area and southeastern locales  
 Q1.g. ☐ Other: \_\_\_\_\_

### Sales volume and pricing section

13. We are interested in data for unit sales of various kinds of lighting equipment and prices for the same items. We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002. I would be happy to fax a copy of our Lighting Equipment Sales and Pricing Form to you.

Fax Number: \_\_\_\_\_

Date Fax sent: \_\_\_\_\_ Date Fax returned: \_\_\_\_\_

**Lighting Equipment Sales and Pricing Form**  
**California Energy Commission Nonresidential Market Share Tracking Study**

Company: \_\_\_\_\_ Reporting Period: \_\_\_\_\_

Respondent: \_\_\_\_\_ Position: \_\_\_\_\_ Phone: \_\_\_\_\_

The primary objective of this survey is to determine the market share achieved by energy-efficient equipment as a function of time. Your data will be combined with that submitted by other companies, and will not be separately disclosed.

We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002, including any data on a quarterly basis. We realize this is asking for more than you may be willing to provide. Please send whatever data you can. Copy the form if you can provide multi-period data. Please note the *Reporting Period* at the top of the page.

Fax Completed Forms to William Steigelmann at 301-519-6333.

**Fluorescent Lamps**

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. T12 Lamps, 4-foot, all types, 40 Watt		<input type="checkbox"/>		<input type="checkbox"/>
b. T12 Lamps, 4-foot, all types, 34 Watt		<input type="checkbox"/>		<input type="checkbox"/>
c. T8 Lamps, 4-foot, all types, 32 Watt		<input type="checkbox"/>		<input type="checkbox"/>
d. T5 Lamps, 4-foot, all types & wattages		<input type="checkbox"/>		<input type="checkbox"/>
e. T9 Circular Lamps, 12-inch diameter, 32 Watt		<input type="checkbox"/>		<input type="checkbox"/>
f. Compact Fluorescent Lamps, all sizes		<input type="checkbox"/>		<input type="checkbox"/>

**HID Lamps and Incandescent Bulbs**

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. HID Lamps: All mercury vapor, metal halide, high-pressure sodium, low-pressure sodium; all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Incandescent Lamps: All sizes, including PAR lamps		<input type="checkbox"/>		<input type="checkbox"/>

## Lighting Equipment Sales and Pricing Form (Continued)

### Magnetic and Electronic Fluorescent Ballasts

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. Magnetic Ballasts for T12 Lamps, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Electronic Ballasts for T8 Lamps, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
c. Dimmable Electronic Ballasts, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
d. Two-Step Electronic Ballasts, all voltages		<input type="checkbox"/>		<input type="checkbox"/>

### Exit Signs

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. LED Exit Signs, all wattages, all types		<input type="checkbox"/>		<input type="checkbox"/>
b. Non-LED Exit Signs, all wattages, all types		<input type="checkbox"/>		<input type="checkbox"/>

### Sensors and Controls

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. Occupancy Sensors: Ceiling- and wall-mounted, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Photoelectric Controls: Ceiling- and wall-mounted, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
c. Electronic Programmable Lighting Timers, all voltages		<input type="checkbox"/>		<input type="checkbox"/>

## Lighting Market Pathways, Sales and Pricing Telephone/Mail Survey for Lighting Designers and Specifiers

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Firm Name: _____ Firm City: _____
Respondent Name: _____	Phone Number: _____ Email: _____
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the nonresidential lighting market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Contact qualification questions and firm information

1. What services does your company provide related to lighting in nonresidential buildings?

Please exclude any category if it applies only to the residential sector.

[CHECK ALL THAT APPLY]

- Q1.a.     ☐ New construction design and specifications
- Q1.b.     ☐ Rebuild/retrofit design
- Q1.c.     ☐ Consulting on designs created by other firms
- Q1.d.     ☐ Installation of lighting systems
- Q1.e.     ☐ Lighting energy audits
- Q1.f.     ☐ Title 24 compliance studies
- Q1.g.     ☐ Over-the-counter sales of lighting equipment
- Q1.h.     ☐ Other sales of lighting equipment
- Q1.i.     ☐ Other (specify): \_\_\_\_\_

2. How many people does your company employ? \_\_\_\_\_

## 3. (ASK ONLY IF EITHER "SALES" RESPONSE WAS GIVEN FOR Q.2):

Which of the following lighting products you sell for use in the nonresidential sector:

- Q3.a. ☐ T12 lamps, four foot  
 Q3.b. ☐ T8 lamps, four foot  
 Q3.c. ☐ T5 lamps, 45 inch  
 Q3.d. ☐ T9 circular lamps, 12 inch O.D.  
 Q3.e. ☐ Compact fluorescent lamps (CFL)  
 Q3.f. ☐ Incandescent lamps, including PAR lamps  
 Q3.g. ☐ HID lamps  
 Q3.h. ☐ Standard magnetic ballasts  
 Q3.i. ☐ Electronic ballasts  
 Q3.j. ☐ Two-level ballasts  
 Q3.k. ☐ Dimmable electronic ballasts  
 Q3.l. ☐ Photoelectric controls  
 Q3.m. ☐ LED and non-LED exit signs  
 Q3.n. ☐ Electronic lighting timer controls

4. What is your firm's revenue from design services and lighting-equipment sales, in both cases only sales involving the nonresidential sector?

- Q4.a. ☐ Design Services: \$ \_\_\_\_\_  
 Q4.b. ☐ Equipment: \$ \_\_\_\_\_  
 RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

(IF RESPONDENT ASKS WHY THIS IS NEEDED, EXPLAIN THAT IT IS TO  
 WEIGHT THE OTHER QUANTITATIVE RESPONSES WHEN THEY ARE  
 COMBINED WITH THE DATA PROVIDED BY OTHER FIRMS.)

**Market pathway questions**5. Please estimate the percentages of annual revenue for nonresidential lighting design services that are done directly for building owners, tenants, general contracting firms, and others:

- Q5.a. Building owners \_\_\_\_\_ %  
 Q5.b. Tenants \_\_\_\_\_ %  
 Q5.c. General contracting firms \_\_\_\_\_ %  
 Q5.d. Others: \_\_\_\_\_ %  
 TOTAL 100 %  
 RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

We are especially interested in learning how your lighting design-related services are split between nonresidential retrofit and renovation projects, and nonresidential new construction work.

6. Overall, please estimate the percentage of your total annual revenue in these two categories:

Q6.a.	Nonresidential Retrofit/Renovation	_____ %
Q6.b.	New Nonresidential Construction	_____ %
TOTAL		100 %

RE ☐ CHECK IF ROUGH ESTIMATE

RTD ☐ REFUSE TO DISCLOSE

DK ☐ DON'T KNOW

7. Please estimate the amount of floorspace (expressed as square feet) in these two categories for which your firm provided lighting design-related services during the last year.

Q7.a. Nonresidential Retrofit/Renovation \_\_\_\_\_ square feet

Q7.b. New Nonresidential Construction \_\_\_\_\_ square feet

TOTAL \_\_\_\_\_ square feet

RE ☐ CHECK IF ROUGH ESTIMATE

RTD ☐ REFUSE TO DISCLOSE

DK ☐ DON'T KNOW

8. Please estimate the percentage of your lighting products sales (i.e., exclude lighting design services) that are for these same two categories:

Q8.a. Nonresidential Retrofit/Renovation \_\_\_\_\_ %

Q8.b. New Nonresidential Construction \_\_\_\_\_ %

TOTAL 100 %

RE ☐ CHECK IF ROUGH ESTIMATE

RTD ☐ REFUSE TO DISCLOSE

DK ☐ DON'T KNOW

9. Where are your clients mostly located? (MULTIPLE RESPONSES ARE ACCEPTABLE)

Q9.a. ☐ All over California

Q9.b. ☐ Northern California (including Sacramento, Santa Rosa, and points north)

Q9.c. ☐ Central California (including San Joaquin Valley, Fresno, Bakersfield, Modesto, Sierra Nevada)

Q9.d. ☐ San Francisco Bay metropolitan area (including Oakland, San Jose, Palo Alto)

Q9.e. ☐ Los Angeles metropolitan area (including Orange County)

Q9.f. ☐ San Diego metropolitan area and southeastern locales

Q9.g. ☐ Other: \_\_\_\_\_

**Market attributes, design-features, and decision-factor questions**

10. What features do your customers or clients most often ask for during the initial stages of lighting design? [CHECK ALL RESPONSES MENTIONED; DO NOT READ LIST]

- Q10.a. ☐ Bright light
- Q10.b. ☐ Natural color
- Q10.c. ☐ Control over individual fixtures
- Q10.d. ☐ Control of light levels
- Q10.e. ☐ Low energy use
- Q10.f. ☐ Low operating costs
- Q10.g. ☐ Low maintenance costs
- Q10.h. ☐ Fancy architectural styling (other than in lobbies and entrances)
- Q10.i. ☐ Daylighting
- Q10.j. ☐ Minimum first cost
- Q10.k. ☐ Other: \_\_\_\_\_
- Q10.l. ☐ Not sure

11. Are any of the features often eliminated during later revision cycles? If so, which ones? [READ BACK LIST OF CHECKED ITEMS FROM ABOVE]

- Q11.a. ☐ None
- Q11.b. ☐ Bright light
- Q11.c. ☐ Natural color
- Q11.d. ☐ Control over individual fixtures
- Q11.e. ☐ Control of light levels
- Q11.f. ☐ Low energy use
- Q11.g. ☐ Low operating costs
- Q11.h. ☐ Low maintenance costs (other than energy)
- Q11.i. ☐ Fancy architectural styling (other than in lobbies and entrances)
- Q11.j. ☐ Daylighting
- Q11.k. ☐ Minimum first cost
- Q11.l. ☐ Other: \_\_\_\_\_
- Q11.m. ☐ Not sure

The next group of questions pertain to the utility rebate programs in California that are available for lighting products:

12. Is your organization familiar with these rebate programs?

- Q12.a. ☐ Yes
  - Q12.b. ☐ No / Don't know
- SKIP TO Q.18

13. Do you make your customers aware that rebates may be available for the lighting products?

- Q13.a. ☐ Frequently or Usually
- Q13.b. ☐ Occasionally or Sometimes
- Q13.c. ☐ Seldom or Rarely
- Q13.d. ☐ No or Never



14. Do you assist your customers in preparing and submitting the rebate application paperwork?

- Q14.a. ☐ Frequently or Usually
- Q14.b. ☐ Occasionally or Sometimes
- Q14.c. ☐ Seldom or Rarely
- Q14.d. ☐ No or Never

15. What percentage of your projects typically applies for these rebates? \_\_\_\_\_ %

16. Are the rebate checks typically sent to your organization or to the customer?

- Q16.a. ☐ My Organization
- Q16.b. ☐ The Customer
- Q16.c. ☐ Not sure / Don't know

17. Do you consider your company to be "active" in utility lighting rebate programs?

- Q17.a. ☐ Yes
- Q17.b. ☐ No
- Q17.c. ☐ No Opinion

18. On average, do your customers pay more attention to the first cost of lighting technologies, or to the first cost plus operating cost, when making purchase decisions?

- Q18.a. ☐ First Cost
- Q18.b. ☐ First Cost Plus Operating Cost
- Q18.c. ☐ No Opinion

19. How frequently have you introduced newly developed energy-efficient lighting technologies to customers?

- Q19.a. ☐ Never or Very Rarely
- Q19.b. ☐ Occasionally or Sometimes
- Q19.c. ☐ Often or Frequently

SKIP TO Q.21

20. How did the customers respond?

- Q20.a. ☐ Favorably
- Q20.b. ☐ Unfavorably

21. How often do you propose to your customers technologies or designs that surpass energy-efficiency regulations?

- Q21.a. ☐ Fairly Often
- Q21.b. ☐ Sometimes
- Q21.c. ☐ Rarely or Never

SKIP TO Q.24

22. How often do customers reject these proposals?

- Q22.a. ☐ Fairly Often
- Q22.b. ☐ Sometimes
- Q22.c. ☐ Rarely or Never

SKIP TO Q.24

23. Which of these reasons do they cite? [THEN CHECK “FREQUENTLY CITED” OR “INFREQUENTLY CITED” FOR EACH ONE CHECKED]

Reasons	Frequently Cited	Infrequently Cited
Q23.a. <input type="checkbox"/> Initial cost		
Q23.b. <input type="checkbox"/> Risk of new technology		
Q23.c. <input type="checkbox"/> Benefits not clear		
Q23.d. <input type="checkbox"/> Priorities not on benefits of new technology		
Q23.e. <input type="checkbox"/> Limited availability / delayed delivery time		
Q23.f. <input type="checkbox"/> Other: _____		
Q23.g. <input type="checkbox"/> None		

24. About what percentage of your designs result in lighting power intensities (Watts/sf) that are 20% below Title 24 requirements, or smaller?

\_\_\_\_\_ % of designs  
 RE ☐ CHECK IF ROUGH ESTIMATE  
 DK ☐ DON'T KNOW

25. During the last two years, have utility and/or state interventions through design-assistance programs affected your final lighting power intensities?

Q25.a. ☐ Yes – they have caused intensities to be lower  
 Q25.b. ☐ Yes – they have caused intensities to be higher  
 Q25.c. ☐ No – they have not affected lighting intensities  
 Q25.d. ☐ Other: \_\_\_\_\_  
 Q25.e. ☐ Not sure / No opinion

26. Do you see any significant differences between the nonresidential retrofit and new construction markets in terms of customers' desired price points or features?

Q26.a. ☐ Yes  
 Q26.b. ☐ No  
 Q26.c. ☐ Don't know / No opinion

27. [IF YES, REQUEST DETAILS CONCERNING DIFFERENCES]

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28. On a scale of 1 to 5, how often do your designs incorporate each of the following technologies?  
[RANK 1 FOR "NEVER" TO 5 FOR "ALWAYS"]

<b>Technology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Verbal scale→	<i>Never</i>	<i>Some- times</i>	<i>About half the time</i>	<i>Most of the time</i>	<i>Always</i>
Q28.a. Task Lighting					
Q28.b. Full (uniform) Space Illumination					
Q28.c. Dimmable Ballasts					
Q28.d. CFLs					
Daylighting, Using:					
Q28.e. - Light Pipes					
Q28.f. - Skylights					
Q28.g. - Windows and Transoms					
Q28.h. –Other: _____					

**Lighting Market Pathways, Sales and Pricing  
Telephone/Mail Survey for Lighting Manufacturers**

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Firm Name: _____
Respondent: _____	Phone Number: _____
Email: _____	
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the nonresidential lighting market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Contact qualification questions

1. Is your company a manufacturer of lamps, ballasts and/or lighting fixtures that are installed in nonresidential (commercial) buildings?
  - Q1.a. ☐ Yes
  - Q1.b. ☐ No *This survey does not apply to your business. Thank you for your time..*
  
2. How would you best characterize the geographic scope for marketing and sales of the lighting equipment you manufacture?
  - Q2.a. ☐ International in scope (sales in the US and foreign countries)
  - Q2.b. ☐ National in scope (sales in the US only)
  - Q2.c. ☐ Regional in scope (e.g., one or more of the US Western states)
  - Q2.d. ☐ Statewide or local in scope (California only)

## 3. Which of the following lighting products does your company manufacture?

- Q3.a. ☐ T12 lamps, four-foot, 34 and 40 Watt  
 Q3.b. ☐ T8 lamps, four-foot, 32 Watt  
 Q3.c. ☐ T5 tubular lamps, 45-inch, 54 Watt  
 Q3.d. ☐ T9 circular lamps, 12-inch O.D., 32 Watt  
 Q3.e. ☐ Compact fluorescent lamps (CFL), all wattages  
 Q3.f. ☐ Incandescent lamps, including PAR lamps, all wattages  
 Q3.g. ☐ HID Lamps, all wattages  
 Q3.h. ☐ Standard magnetic ballasts, all wattages, 120 and 277 Volts  
 Q3.i. ☐ Electronic ballasts, all wattages, 120 and 277 Volts  
 Q3.j. ☐ Dimmable electronic ballasts, all wattages, 120 and 277 Volts  
 Q3.k. ☐ Electronic ballasts with multi-level controls, all wattages, 120 and 277 Volts  
 Q3.l. ☐ Occupancy sensors, all types, all wattages  
 Q3.m. ☐ Photoelectric controls, all types (single & double pole), all wattages  
 Q3.n. ☐ LED and Non-LED Exit signs, all wattages  
 Q3.o. ☐ Electronic Lighting Timer Control, all wattages  
 Q3.p. ☐ Other: \_\_\_\_\_

4. What is the approximate dollar volume of your annual sales of lighting products used in nonresidential buildings?

Q4.a. Total: \$ \_\_\_\_\_

Q4.b. California: \$ \_\_\_\_\_

RE ☐ CHECK IF ROUGH ESTIMATERTD ☐ REFUSE TO DISCLOSEDK ☐ DON'T KNOW

(IF RESPONDENT ASKS WHY THIS IS NEEDED, EXPLAIN THAT IT IS TO WEIGHT THE OTHER QUANTITATIVE RESPONSES WHEN THEY ARE COMBINED WITH THE DATA PROVIDED BY OTHER FIRMS.)

## 5. How many people does your company employ in its lighting business? \_\_\_\_\_

**Market pathway questions**

## 6. Where are most of your California customers located?

(MULTIPLE RESPONSES ARE ACCEPTABLE)

- Q6.a. ☐ All over California  
 Q6.b. ☐ Northern California (including Sacramento, Santa Rosa, and points north)  
 Q6.c. ☐ Central California (including San Joaquin Valley, Fresno, Bakersfield, Modesto, Sierra Nevada)  
 Q6.d. ☐ San Francisco Bay metropolitan area (including Oakland, San Jose, Palo Alto)  
 Q6.e. ☐ Los Angeles metropolitan area (including Orange County)  
 Q6.f. ☐ San Diego metropolitan area and southeastern locales

Q6.g. ☐ Other: \_\_\_\_\_

7. In Column A, please give us an estimate of the percentages (by dollar volume) of all the lamps that your company **SELLS** directly to each type of customers in California. In Column B, please give us a similar estimate for all the ballasts that your company sells in California.

<b>Customer Types in California</b>		<b>Column A: Lamps</b>	<b>Column B: Ballasts</b>
Q7.a.	Lighting wholesalers and distributors	_____ %	_____ %
Q7.b.	Lighting fixture OEMs	_____ %	_____ %
Q7.c.	Electrical contractors and lighting installers	_____ %	_____ %
Q7.d.	Building or facility owners or managers	_____ %	_____ %
Q7.e.	Builders of new nonresidential buildings	_____ %	_____ %
Q7.f.	Energy service companies (ESCOs)	_____ %	_____ %
Q7.g.	General public	_____ %	_____ %
Q7.h.	Other _____	_____ %	_____ %
		<b>TOTAL</b>	<b>100%</b>
			<b>100%</b>
		RE <input type="checkbox"/>	CHECK IF ROUGH ESTIMATE
		RTD <input type="checkbox"/>	REFUSE TO DISCLOSE
		DK <input type="checkbox"/>	DON'T KNOW

8. In Column A, please give us an estimate of the percentages (by dollar volume) of all the lamps that your company **SELLS** directly to each market segment in California. In Column B, please give us a similar estimate for all the ballasts that your company sells in California.

<b>Market Segments in California</b>		<b>Column A: Lamps</b>	<b>Column B: Ballasts</b>
Q8.a.	Existing nonresidential buildings and facilities	_____ %	_____ %
Q8.b.	New nonresidential building construction	_____ %	_____ %
Q8.c.	Residential and multifamily, new and existing	_____ %	_____ %
Q8.d.	Industrial, new and existing	_____ %	_____ %
Q8.e.	Other: _____	_____ %	_____ %
		<b>TOTAL</b>	<b>100%</b>
			<b>100%</b>
		RE <input type="checkbox"/>	CHECK IF ROUGH ESTIMATES

### Sales volume and pricing questions

9. We are interested in data for unit sales of various kinds of lighting equipment and prices for the same items. We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002. I would be happy to fax a copy of our Lighting Equipment Sales and Pricing Form to you.

Fax Number: \_\_\_\_\_  
 Date Fax sent: \_\_\_\_\_ Date Fax returned: \_\_\_\_\_

## Lighting Equipment Sales and Pricing Form

### California Energy Commission Nonresidential Market Share Tracking Study

Company: \_\_\_\_\_ Reporting Period: \_\_\_\_\_

Respondent: \_\_\_\_\_ Position: \_\_\_\_\_ Phone: \_\_\_\_\_

The primary objective of this survey is to determine the market share achieved by energy-efficient equipment as a function of time. Your data will be combined with that submitted by other companies, and will not be separately disclosed.

We can accept data in any form in which you have it. If available, we would like data for 2000, 2001, and 2002, including any data on a quarterly basis. We realize this is asking for more than you may be willing to provide. Please send whatever data you can. Copy the form if you can provide multi-period data. Please note the *Reporting Period* at the top of the page.

Fax Completed Forms to William Steigelmann at 301-519-6333.

#### Fluorescent Lamps

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. T12 Lamps, 4-foot, all types, 40 Watt		<input type="checkbox"/>		<input type="checkbox"/>
b. T12 Lamps, 4-foot, all types, 34 Watt		<input type="checkbox"/>		<input type="checkbox"/>
c. T8 Lamps, 4-foot, all types, 32 Watt		<input type="checkbox"/>		<input type="checkbox"/>
d. T5 Lamps, 4-foot, all types & wattages		<input type="checkbox"/>		<input type="checkbox"/>
e. T9 Circular Lamps, 12-inch diameter, 32 Watt		<input type="checkbox"/>		<input type="checkbox"/>
f. Compact Fluorescent Lamps, all sizes		<input type="checkbox"/>		<input type="checkbox"/>

#### HID Lamps and Incandescent Bulbs

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. HID Lamps: All mercury vapor, metal halide, high-pressure sodium, low-pressure sodium; all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Incandescent Lamps: All sizes, including PAR lamps		<input type="checkbox"/>		<input type="checkbox"/>

## Lighting Equipment Sales and Pricing Form (Continued)

### Magnetic and Electronic Fluorescent Ballasts

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. Magnetic Ballasts for T12 Lamps, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Electronic Ballasts for T8 Lamps, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
c. Dimmable Electronic Ballasts, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
d. Two-Step Electronic Ballasts, all voltages		<input type="checkbox"/>		<input type="checkbox"/>

### Exit Signs

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. LED Exit Signs, all wattages, all types		<input type="checkbox"/>		<input type="checkbox"/>
b. Non-LED Exit Signs, all wattages, all types		<input type="checkbox"/>		<input type="checkbox"/>

### Sensors and Controls

Equipment Type	Total Number of Units Sold in California	Check if Rough Estimate	Estimated Sales Volume (\$) for Units Sold in California	Check if Rough Estimate
a. Occupancy Sensors: Ceiling- and wall-mounted, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
b. Photoelectric Controls: Ceiling- and wall-mounted, all voltages		<input type="checkbox"/>		<input type="checkbox"/>
c. Electronic Programmable Lighting Timers, all voltages		<input type="checkbox"/>		<input type="checkbox"/>



**Window Market Pathways, Sales and Pricing  
Telephone/Mail Survey for Window Vendors and Installers**

Interview ID No.: _____	Date: _____
Interviewer Initials: _____	Firm Name: _____
Respondent Name: _____	Phone Number: _____ Email: _____
Title: _____	Duties: _____

### Introduction

*Thank you for helping with this important research project. We hope to learn your perspectives concerning trends in the nonresidential window market. This research is being performed by Aspen Systems on behalf of the California Energy Commission. Your responses will be used to help plan future energy-efficiency programs and to avoid power shortages.*

*All information you provide will be aggregated with that provided by other firms. Your specific responses will not be disclosed to other parties.*

### Contact qualification questions and firm information

1. What services does your company provide related to windows in **NONRESIDENTIAL** buildings? (CHECK ALL THAT APPLY)

- Q1.a ☐ No window products and services for nonresidential buildings  
 Q1.b ☐ Window sales  
 Q1.c ☐ Window installation  
 Q1.d ☐ Custom window fabrication  
 Q1.e ☐ Sales and installation of window tint film  
 Q1.f ☐ Other (specify) \_\_\_\_\_

- 1x. What percentage of your business involves window sales or services for **NONRESIDENTIAL** buildings? \_\_\_\_\_ %

IF response is not at least 15%, or if business does not involve window sales or services":  
*This survey does not apply to your business. Thank you for your time. Good-bye.*

2. What is the approximate number of employees working for your company? \_\_\_\_\_
3. What percentage are full-time employees? \_\_\_\_\_ %

**Market pathway questions**

4. Please provide the approximate percentage of window products you obtain from each of the following sources: (READ LIST)

Q4.a	<input type="checkbox"/>	Flat glass manufacturers	_____ %
Q4.b	<input type="checkbox"/>	Window glass wholesalers or distributors	_____ %
Q4.c	<input type="checkbox"/>	Prefabricated window manufacturers	_____ %
Q4.d	<input type="checkbox"/>	Window tint film manufacturers	_____ %
Q4.e	<input type="checkbox"/>	Other: _____	_____ %

TOTAL 100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

5. What is the approximate annual sales revenue of your company for nonresidential window products and services you sell? \$ \_\_\_\_\_

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

(IF RESPONDENT ASKS WHY THIS IS NEEDED, EXPLAIN THAT IT IS TO WEIGHT THE OTHER RESPONSES WHEN THEY ARE COMBINED WITH DATA PROVIDED BY OTHER FIRMS.)

6. What is the approximate distribution of revenue (expressed as a percentage) for each of the following nonresidential categories:

Q6.a	<input type="checkbox"/>	Window sales	_____ %
Q6.b	<input type="checkbox"/>	Window installation	_____ %
Q6.c	<input type="checkbox"/>	Custom window fabrication	_____ %
Q6.d	<input type="checkbox"/>	Sales and installation of window tint film	_____ %
Q6.e	<input type="checkbox"/>	Other _____	_____ %

TOTAL 100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

7. Please estimate the percentage of annual revenue for window-related products and services received from builders, building owners, tenants, general contracting firms or others:

Q7.a	<input type="checkbox"/>	Builders and developers of new nonresidential construction	_____ %
Q7.b	<input type="checkbox"/>	Building owners or facility managers	_____ %
Q7.c	<input type="checkbox"/>	Property management companies	_____ %
Q7.d	<input type="checkbox"/>	Architects and engineers	_____ %
Q7.e	<input type="checkbox"/>	Tenants	_____ %
Q7.f	<input type="checkbox"/>	General contracting firms	_____ %
Q7.g	<input type="checkbox"/>	Others _____	_____ %

TOTAL 100 %

RE ☐ CHECK IF ROUGH ESTIMATE

RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

8. Overall, please estimate the percentage of your total annual revenue window-related products and services coming from:

Q8.a ☐ Nonresidential Retrofit/renovation \_\_\_\_\_ %  
 Q8.b ☐ New nonresidential construction \_\_\_\_\_ %  
 TOTAL \_\_\_\_\_ 100 %

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

9. Where are your customers located? (MULTIPLE SELECTIONS ARE ACCEPTABLE)

Q9.a ☐ All over California  
 Q9.b ☐ Northern California (including Sacramento, Santa Rosa, and points north)  
 Q9.c ☐ Central California (including San Joaquin Valley, Fresno, Bakersfield, Modesto, Sierra Nevada)  
 Q9.d ☐ San Francisco Bay metropolitan area (including Oakland, San Jose, Palo Alto)  
 Q9.e ☐ Los Angeles metropolitan area (including Orange County)  
 Q9.f ☐ San Diego metropolitan area and southeastern locales  
 Q9.g ☐ Other: \_\_\_\_\_

The next group of questions pertain to the utility-incentive programs in California that are available for window products:

10. Is your organization familiar with these rebate programs?

Q10.a ☐ Yes  
 Q10.b ☐ No / Don't know SKIP TO Q.17

11. Have you received rebates or incentives from any of the following sources?

Q11.a ☐ PG&E, SCE, or SDGE ("Savings By Design" New Construction program)  
 Q11.b ☐ Municipal utility company program  
 Q11.c ☐ Energy savings performance contracts  
 Q11.d ☐ Other \_\_\_\_\_

12. Do you make your customers aware that rebates may be available for window products?

Q12.a ☐ Frequently or Usually  
 Q12.b ☐ Occasionally or Sometimes  
 Q12.c ☐ Seldom or Rarely  
 Q12.d ☐ No or Never

13. Do you assist your customers in preparing and submitting the rebate application paperwork?

Q13.a ☐ Frequently or Usually  
 Q13.b ☐ Occasionally or Sometimes  
 Q13.c ☐ Seldom or Rarely  
 Q13.d ☐ No or Never

14. What percentage of your projects typically applies for these rebates? \_\_\_\_\_ %

15. Are the rebate checks typically sent to your organization or to the customer?

- Q15.a ☐ My Organization  
 Q15.b ☐ The Customer  
 Q15.c ☐ Not sure / Don't know

16. Do you consider your company to be "active" in utility window rebate programs?

- Q16.a ☐ Yes  
 Q16.b ☐ No  
 Q16.c ☐ No Opinion

17. Please tell us the quantity of windows sold and/or installed in the most recent year:

Category	Number of units	Number of square feet
Q17.a Window sales		
Q17.b Window installation		

(SKIP TO CLOSING [Q.30] IF RESPONDENT DOES NOT SELL WINDOWS)

18. What brand(s) of windows does your firm sell?

- Q18.a ☐ Andersen  
 Q18.b ☐ Caradco  
 Q18.c ☐ CertainTeed  
 Q18.d ☐ Hurd  
 Q18.e ☐ Kolbe  
 Q18.f ☐ Loewen  
 Q18.g ☐ Norco  
 Q18.h ☐ Marvin  
 Q18.i ☐ MW  
 Q18.j ☐ Pella  
 Q18.k ☐ Traco  
 Q18.l ☐ WeatherShield  
 Q18.m ☐ Other (enter): \_\_\_\_\_

19. I am going to read a list of features included in various nonresidential window designs. Please indicate if more than about five percent of the windows you sell include these features:

- Q19.a ☐ Double pane  
 Q19.b ☐ Triple pane  
 Q19.c ☐ Low emissivity coatings  
 Q19.d ☐ Tinting (including add-on solar films)  
 Q19.e ☐ Reflective coatings  
 Q19.f ☐ Resp.-Named-1 \_\_\_\_\_  
 Q19.g ☐ Resp.-Named-2 \_\_\_\_\_

20. Please estimate the approximate percentage of windows sold with those features?  
(READ ONLY THOSE NOTED IN THE PREVIOUS QUESTION.)

Feature	Percentage of Windows Sold	Not Sure
Q20.a Double pane	%	<input type="checkbox"/>
Q20.b Triple pane	%	<input type="checkbox"/>
Q20.c Low-E coatings	%	<input type="checkbox"/>
Q20.d Tinting	%	<input type="checkbox"/>
Q20.e Reflective coatings	%	<input type="checkbox"/>
Q20.f Resp.-Named-1	%	<input type="checkbox"/>
Q20.g Resp.-Named-2	%	<input type="checkbox"/>

21. Consider you are selling a set of 25 windows, each 4-feet by 5-feet, with fixed glass with a light-gray tint held in a metal frame. What would be a typical cost for one of these basic, low-cost “no frills” windows? \$ \_\_\_\_\_

RE ☐ CHECK IF ROUGH ESTIMATE  
 RTD ☐ REFUSE TO DISCLOSE  
 DK ☐ DON'T KNOW

22. Compared to the cost of that basic window, how much extra would it cost, in percentage terms, to upgrade that window with the following energy-efficiency features?  
(Ask only for features noted above. Enter range if necessary.)

Energy-Saving Feature	Increase in Price	Nothing (Included in Basic Unit)	Not Sure
Q22.a Double pane	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.b Triple pane	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.c Low emissivity coatings	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.d Tinting	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.e Reflective coatings	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.f Other-1, described above	_____ %	<input type="checkbox"/>	<input type="checkbox"/>
Q20.g Other-2, described above	_____ %	<input type="checkbox"/>	<input type="checkbox"/>

EXPLAIN HERE IF RESPONDENT CAN ONLY PROVIDE “BUNDLED” PRICING OF OPTIONS:

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**Market attributes, design and purchase decision questions**

23. What are the top three priorities your customers consider when they are specifying new windows?

(PROMPT WITH CHOICES ONLY IF NECESSARY. NUMBER FROM “1” TO “3”, WITH “1” BEING FIRST PRIORITY)

- Q23.a  First cost  
 Q23.b  Appearance/architectural design  
 Q23.c  Energy savings  
 Q23.d  Brand name  
 Q23.e  Quality  
 Q23.f  Ease of maintenance and cleaning  
 Q23.g  Ease of installation  
 Q23.h  Product life  
 Q23.i  Other: \_\_\_\_\_

24. What reasons are cited by customers who are resistant to new energy-efficient windows?  
 (CHECK “Frequently Cited” OR “Infrequently Cited” FOR EACH REASON)

Reason		Frequently Cited	Infrequently Cited
Q24.a	<input type="checkbox"/> Initial cost		
Q24.b	<input type="checkbox"/> Risk of new technology		
Q24.c	<input type="checkbox"/> Benefits not clear		
Q24.d	<input type="checkbox"/> Priorities not on benefits of new technology		
Q24.e	<input type="checkbox"/> Limited availability or delivery delay		
Q24.f	<input type="checkbox"/> Other (please explain)		
Q24.g	<input type="checkbox"/> None		

25. Do customers commonly purchase the same type of window for all four sides of the building, or do they more commonly mix types according to solar orientation or other reasons (e.g., exterior appearance)?

- Q25.a ☐ The same  
 Q25.b ☐ Mixed (solar orientation)  
 Q25.c ☐ Mixed (other reason)  
 Q25.d ☐ Not sure

26. Under normal circumstances, what is the typical delivery lead time for windows?

- Q26.a ☐ None  
 Q26.b ☐ \_\_\_\_\_ weeks  
 Q26.c ☐ Not sure / Response is highly approximate  
 Q26.d ☐ Don't know

27. How much extra time, if any, does it typically add to delivery time to order windows with special energy-efficiency features?

Q27.a ☐ None

Q27.b ☐ \_\_\_\_\_ weeks

Q27.c ☐ Not sure / Response is highly approximate

Q27.d ☐ Don't know

28. Do you see any significant differences between the nonresidential retrofit and new-construction markets in terms of customers' desired price points or features?

Q28.a ☐ Yes

Q28.b ☐ No

Q28.c ☐ No opinion

29. (IF THE RESPONSE TO Q.28 IS “Yes,” REQUEST FURTHER DETAILS)

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### Closing

30. Do you have any other comments you would like to share or advice you would like to give regarding promotion of energy-efficient windows?

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Thank you very much for your time and thoughtful consideration.